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Atomic Blogs



[05/25/2010] Creation of the nuclear shield of the Fatherland

E.F. Korchagin, veteran of nuclear energy and industry, former employee of RFNC-VNIIEF, nuclear weapons tester

April 2010, the latest START Treaty is signed. The leaders of Russia and the United States have concluded a new agreement that provides for a significant reduction in the number of nuclear weapons and their delivery systems. The surplus of nuclear weapons is reduced, officially by a third. Independent experts comment on this event in different ways. Some question the very idea of reducing nuclear weapons to minimum levels and the fact that we will be able to live in a world without nuclear weapons.

When the Americans bombed the Japanese cities of Nagasaki and Hiroshima in 1945, the entire world became the target of an atomic threat, and the USSR in particular. In 1947, Foreign Minister Vyacheslav Mikhailovich Molotov apparently bluffed by declaring that the secret of the atomic bomb no longer existed for the Soviet Union. However, in reality, the USSR was still very far from creating an atomic bomb. Nevertheless, the task of the Soviet Atomic Project, fantastic at that time, was accomplished in two years!

The Americans were in a state of shock. They were increasing their nuclear potential and constantly adjusting their plans for attacking the Soviet Union, and already in 1949 they could have struck the cities of our country using about 300 atomic bombs (the "Dropshot" plan).

We still had to grow up to serial production. Perhaps, this was the most intense period in the life of our country, and of all mankind, when one wrong step could lead to irreparable consequences. The leaders of the Soviet Union understood this perfectly well.

On August 29, 2009, the 60th anniversary of the testing of the first Soviet atomic bomb RDS-1 was celebrated. At the VNIIEF Nuclear Center in the city of Sarov (formerly Arzamas-16), the birthplace of the RDS-1, anniversary events were held, the culmination of which was a joint ceremonial meeting of two scientific and technical councils - the nuclear weapons complex and RFNC-VNIIEF. In his report, the chairman of the STC, scientific director of VNIIEF, academician of the Russian Academy of Sciences R.I. Ilkaev emphasized that:

"The creation of the first Russian atomic bomb (RDS-1) is the result of the heroic feat of hundreds of thousands of our predecessors - scientists, engineers, workers, great leaders and ordinary workers who responsibly carried out their work. Dozens of organizations and industries worked on the Atomic Project. The successful completion of these grandiose efforts with a practical result - the development and testing of RDS-1 - fell to KB-11 (now RFNC-VNIIEF)."

And what followed?

The beginning of the creation of an arsenal of nuclear weapons in the USSR

The first atomic bomb had not yet been tested in the Soviet Union (this test was successfully carried out on August 29, 1949), but the Council of Ministers of the USSR had already adopted the Resolution of March 3, 1949 No. 863-327ss/op on the construction of the first plant in the USSR for the industrial production of atomic bombs. It required the construction of facility No. 550 in the closed zone in 1949-1950, as

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part of KB-11, an assembly plant with a production capacity of 20 RDS units per year.

In addition to the atomic bomb for the test on August 29, 1949, by the end of 1949, the KB-11 experimental production facility had manufactured two more RDS-1. And in 1950, the same KB-11 experimental production facility manufactured nine more (instead of the seven planned) RDS-1 atomic bombs. In addition, four more atomic bombs were manufactured in January-February 1951.

Thus, long before the final launch of the first serial plant for the industrial production of atomic bombs at full capacity, by March 1, 1951, the Soviet Union's atomic weapons arsenal included 15 (plutonium) RDS-1 type atomic bombs.

The atomic bombs were stored here on the territory of the nuclear "object No. 550" (KB-11) in a specially constructed underground reinforced concrete warehouse-storage facility. The bombs were stored in a disassembled state, the component units and parts were also in reinforced concrete above-ground (covered with earth) storage facilities. All storage facilities were guarded by MGB troops.

During a special period, these munitions could be reassembled, transported, brought to the highest (combat) level of readiness and transferred to the appropriate military unit for combat use. The final preparation of these "products" (atomic bombs) for combat use was assigned to the assembly brigade of KB-11. The tasks of delivering atomic bombs to the target and bombing were assigned to the Air Force of the Soviet Army.

By the end of 1951, the pilot production and serial plant No. 551, which went into operation in the second half of 1951 as part of KB-11 (plant No. 3 KB-11), had produced 29 RDS-1 atomic bombs, including the first three serially produced atomic bombs equipped with nuclear charges created at the pilot production of KB-11.

In 1952, it was planned to manufacture 35 atomic bombs by KB-11 (experimental and serial production), and in 1953 – 44 atomic bombs.

After the successful testing of the 502-M (RDS-2) atomic charge at the Semipalatinsk test site on September 24, 1951, serial plant No. 551 KB-11 mastered the production of RDS-2 type atomic bombs by the end of 1951. And already in November-December 1951, plant No. 551 KB-11 manufactured six RDS-2 type atomic bombs, in addition to three RDS-1.

Thus, on January 1, 1952, there were 35 atomic bombs in KB-11:

- 29 RDS-1 type atomic bombs: 2 of them were manufactured in 1949, 9 in 1950, 18 in 1951.

- 6 RDS-2 type atomic bombs manufactured in 1951 (except for two used in tests on 24.08.1951 and 18.10.1951).

Control assembly of nuclear weapons was carried out by KB-11 specialists. The serial batch of RDS-1 and RDS-2 atomic bombs created as initial ammunition was stored in KB-11 storage facilities. Maintenance and all routine work was also carried out by KB-11 specialists.

Some of these "products" were "put into experimental storage", during which operational documentation and requirements for warehouses (storage facilities) were developed.

In August 1951, the USSR Council of Ministers adopted a resolution (dated 29.08.1951) to begin construction of the first military depots – nuclear bases intended for storing and preparing for use of atomic bombs. There were only four of them: in the north of Crimea (commander I.I. Kuzovatkin), in Western Ukraine (commander Zaika), in Belarus (commander Gusev), in northwestern Russia (commander Shirshov).

By the Resolution of the Council of Ministers of the USSR of September 15, 1951 No. 3506-1628ss/op, construction was planned in 1951-1952 in the Urals of a second serial plant on the premises of "Object No. 814" in the city of Sverdlovsk-45 (now the city of Lesnoy) for the manufacture of "501-M" products, with a production capacity of 60 units per year with two-shift operation. The commissioning date of this plant was set for the first quarter of 1953. A. Ya. Malsky, who had previously headed experimental plant No. 2 of KB-11, was appointed director of the serial plant in Sverdlovsk-45.

In the initial period of establishing serial production of nuclear weapons, the new plant made extensive use of the experience of Plant No. 551 KB-11, which, despite its own youth, played the role of the main enterprise supplying management personnel.

On March 10, 1952, a special building, laboratory No. 106, was commissioned at Plant No. 551 KB-11, designed for the serial production of neutron sources (NS), as an element of a nuclear charge for atomic bombs. And already on October 1, 1952, their serial production began in the laboratory.

The successful test of the RDS-3 aerial atomic bomb with the 501-M nuclear charge at the Semipalatinsk test site on October 18, 1951, by dropping it from a TU-4 aircraft, served as the basis for the development of its serial production at Plant No. 551 KB-11.

The increased production capacity of the plant made it possible to manufacture 40 atomic bombs in 1952, including 24 RDS-2 type atomic bombs and 16 RDS-3 type atomic bombs.

The same serial production of plant No. 551 KB-11 converted 29 RDS-1 atomic bombs, manufactured in 1949-1951, into RDS-2 (19 units in 1952, 10 units in the first half of 1953).

In total, as of January 1, 1953, 75 atomic bombs (59 RDS-2 units and 16 RDS-3 units) were manufactured and stored in KB-11 storage facilities by the experimental and serial production facilities of KB-11.

Note: The nuclear charge "501-M" for the RDS-2 and RDS-3 atomic bombs is a modernized version of the nuclear charge "501" with an improved focusing system.

Training of specialists for the assembly and operation of nuclear weapons

A scientifically sound system for storing and operating nuclear weapons at nuclear bases could only be organized by well-trained engineering and technical personnel. In a short time, it was necessary to organize a system for training personnel for assembling nuclear weapons in military units, storing them, and subsequently operating them.

Who could do this at that time? Of course, KB-11 and serial plant No. 551 within it. In early 1952, by decision of the head of the First Main Directorate under the Council of Ministers of the USSR, B.L. Vannikov, special courses for training such specialists were organized in KB-11. The head of the courses was appointed engineer-colonel I.A. Nazarevsky, who had previously headed the external testing department of the scientific and design sector (NKS) of KB-11.

By order of the Director of KB-11, General A.S. Alexandrov, dated October 19, 1951, the following tasks were set for the special courses:

- training of KB-11 teams for the maintenance and operation of nuclear weapons manufactured by serial plant No. 3 KB-11;
- training of teams for military units of nuclear bases and testing grounds for the operation and testing of nuclear weapons;
- training of teaching staff for future training centers for special army units operating nuclear weapons.

The first group of students (40 people) began training on a six-month course at the beginning of 1952. Mid-level and senior officers, warrant officers and petty officers were selected from military units.

By order of the Director of KB-11, General A.S. Aleksandrov, the Director of the serial plant No. 551 KB-11 was to ensure that practical training was conducted on the products "501" and "501-M".

In total, three streams of cadets completed training at the special courses at KB-11, each of which included assemblers (from warrant officers and petty officers) and senior and middle command personnel. The first graduating class also included a group of colonels, who left for their duty stations as heads of special brigades (military assembly brigades – VSB) for the operation of nuclear weapons.

Due to the growing need for engineering and technical personnel knowledgeable about nuclear weapons (both in industry and in the Ministry of Defense), in May 1954 the USSR Government decided to reorganize the existing KB-11 courses into a Training Center with its own educational and material base and a team of full-time teachers. Based on this Resolution, the head of the facility (KB-11) issued an order on July 3, 1954, prescribing:

- create a Training Center at the facility;
- the duties of the head of the Training Center shall be assigned to I.A. Nazarevsky;
- the duties of the deputy head of the Training Center and the head of the training unit shall be assigned to Comrade N.I. Netsvetov;
- curriculum plans and equipment lists to be submitted for approval by July 25, 1954;
- until the commissioning of the service premises of the Training Center, it shall be located in the utility rooms of workshop 103 of plant No. 551 KB-11 (plant No. 3).

The exploitation of the created arsenal of nuclear weapons (atomic bombs), stored in the KB-11 repositories, and the ever-increasing production of atomic bombs by serial plant No. 551 KB-11 (the production of 50 atomic bombs was planned for 1953) required the leadership of the First Main Directorate under the USSR Council of Ministers and the leadership of KB-11 to decide on the organization of special personnel formations. And at the beginning of the second half of 1953, two military assembly brigades headed by Air Force Colonels Nyurkov G.G. and Kapustin V.I. were created from the military personnel on the staff of KB-11. The staff of the brigade headed by Colonel Nyurkov G.G. consisted mainly of graduates of the first intake of special courses in 1952. The military assembly brigade of Kapustin V.I. included graduates of the second intake of special courses. Both teams were directly subordinate to the director of Plant No. 551 KB-11, and control over their activities was provided by the plant's quality control department specialists and special military acceptance. These military assembly teams assembled "special products" (atomic bombs) that were produced by serial Plant No. 551 KB-11 (Plant No. 3).

Expansion of serial production of nuclear weapons

By the Resolution of the Council of Ministers of the USSR dated January 24, 1952 No. 342-135ss/op, a decision was made to build Plant No. 933 (Instrument-Making Plant - PSZ) in the Urals in the city of Zlatoust-36, Chelyabinsk Region (now the city of Trekhgornyy) as a second backup for Serial Plant No. 551 KB-11. K.A. Volodin, who had previously headed Serial Plant No. 551 KB-11, was appointed Director of Instrument-Making Plant No. 933.

On August 1, 1955, the plant began fulfilling the first state order. And already in August 1955, the first products were released in the form of two tactical aviation atomic bombs RDS-4 "Tatiana".

By the Decree of the Council of Ministers of the USSR of May 20, 1954, it was ordered to create the fourth instrument-making plant No. 1134 in the city of Penza-19 (now the city of Zarechny). Its task was the serial production of products for nuclear munitions, which was mastered in 1958. At the end of 1963, the plant began assembling the first serial nuclear munitions.

The necessary components made of fissile materials (plutonium, highly enriched uranium-235) for nuclear charges were manufactured at the plants of the Ministry of Medium Machine Building: Chemical and Metallurgical Plant No. 817 (Chelyabinsk-40, now PO Mayak, Ozersk) and Siberian Chemical Plant No. 816 (Tomsk-7, now Seversk).

The assembly of units with fissile materials and the assembly of the nuclear charges themselves was carried out only at two serial plants of the Ministry of Medium Machine Building: at the Electromechanical Plant "Avangard" (formerly Plant No. 551 KB-11) and the "Elektrokhimpribor" plant (formerly "object No. 814" in Sverdlovsk-45). The production of other units and components for nuclear charges and ammunition was carried out at serial plants of the Ministry of Medium Machine Building: the Avangard Electromechanical Plant (formerly Plant No. 551 KB-11, Arzamas-16), the Elektrokhimpribor Plant (formerly Plant No. 814, Sverdlovsk-45), the Instrument-Making Plant (formerly Plant No. 933, Zlatoust-36), and the Penza Instrument-Making Plant (formerly Plant No. 1134, Penza-19).

Note: RDS-4 ("Tatiana") is a serial aviation atomic bomb, intended for tactical carrier aircraft IL-28.

Photos from the Nuclear Weapons Museum in Sarov

The system of storage and operation of nuclear weapons under the jurisdiction of the Ministry of Defense

The construction of the first two central nuclear weapons storage bases in military units, which began by decision of the Council of Ministers of the USSR on August 29, 1951, was completed in 1955. And in 1956, the central nuclear weapons storage base was put into operation.

In 1954, serial production of RDS-3 and RDS-4 nuclear munitions began, and in February 1955, their first "bookmarking" took place in the storage facilities of the military central nuclear weapons bases (4 atomic bombs in each storage facility).

Initially, nuclear weapons (atomic bombs) arrived from manufacturing plants in disassembled form. In this state, the first samples of nuclear weapons were stored in storage facilities at central bases. Here, the components of the nuclear weapon were tested and assembled into the body. Only beginning in the second half of 1957, by order of the Government, the Ministry of Medium Machine Building organized the storage of nuclear weapons at central bases in a higher degree of readiness.

Each central nuclear weapons storage base was assigned a certain number of forward military depots – stationary nuclear weapons bases that were supplied with nuclear munitions.

The military assembly brigades that were part of the military nuclear weapons storage bases were subordinated in a special manner to the Ministry of Medium Machine Building (formerly the First Main Directorate under the CM). Only by order of the leadership of this Ministry could the assembly brigades begin preparing nuclear bombs and issuing them for suspension on carrier aircraft.

The assembly and "laying" of nuclear bombs at central bases was carried out by military assembly brigades of KB-11: VSB No. 1 headed by Colonel G.G. Nyrkov and VSB No. 2 headed by Colonel V.I. Kapustin.

In connection with the preparation for the first "laying" of atomic bombs at central bases, the Council of Ministers of the USSR on January 22, 1955 adopted a resolution on the issue of linking the work of the Ministry of Defense and the Ministry of Medium Machine Building. It clearly defined the responsibilities of the two ministries in matters of the operation and use of nuclear weapons.

The Ministry of Medium Machine Building was responsible for: "... the development and production of nuclear weapons; the storage of nuclear bombs both in the MSM warehouses and at the airfield nuclear weapons bases of the Ministry of Defense; the timely preparation of nuclear bombs for combat use within the established timeframes; the timely preparation of nuclear bombs in the MSM warehouses for shipment to the airfield warehouses of the USSR Ministry of Defense; the assembly, final loading of atomic bombs, their pre-flight preparation and setting of the detonation altitude."

The Ministry of Defense was responsible for: "... performing combat missions related to the use of nuclear bombs; maintaining carrier aircraft and their crews in constant combat readiness; transporting nuclear bombs from storage facilities to aircraft for suspension; suspending nuclear bombs on carrier aircraft; issuing data to the Ministry of Medium Machine Building for setting a given altitude for the bomb to detonate over a target using a barometer; timely delivery of rolling stock to the warehouses of the Ministry of Medium Machine Building (central nuclear weapons storage bases) and delivery of nuclear bombs to airfield bases within the timeframes in accordance with the plan of the USSR Ministry of Defense."

A former employee of KB-11 (VNIIEF) Andrei Petrovich Kakichev shared his memories of this period on the pages of the Sarov newspaper "Novy Gorod No." :

"In January 1955, the order came from the top to KB-11 to prepare two groups of specialists to service atomic bombs. Everything was done in deep secrecy. (Probably, archival traces should have been preserved, but when at the First Historical Conference on the Development of the First Models of Atomic Weapons, I approached its chairman, Yevgeny Arkadyevich Negin, with a proposal to talk about this, he was very surprised that such an event had occurred in the life of the Institute, and, naturally, allowed me to speak.)

Then two groups of 25 people from various fields of specialists were quickly organized to service "their" devices. Our group was trained by Alexander Ivanovich Veretennikov (later the director), a great specialist in high-speed oscillography. Alexander Ivanovich clearly explained to us the structure of the bomb's automatics and what we had to do for its technical maintenance. After a month of training, at the end of January 1955, our group, led by the deputy head of the barometric department, Evgeny Petrovich Andronov, arrived at its destination.

This place turned out to be a district center of the Novgorod region. We were housed in Finnish houses on the territory of a military town servicing a strategic airfield, on the outskirts of which there are storage facilities - two squat, earthen buildings; next to it is a runway for carrier aircraft.

The task was to service, control and maintain the products in constant combat readiness: a PAZik pulls up, two minutes to pack, and in 5 minutes we are in the storage facility. In the middle of the storage hall there were carts with RDS-3 products secured to their cradle. Each of us (physicists, barometer operators, battery operators, etc.) was checking and monitoring the performance of the devices according to our own work profile. From the military, there was one gray-haired colonel, a kind of "keeper-caretaker", who monitored the general order and strict temperature and humidity conditions, according to the instructions for the product. It was funny to watch him take a bucket of water and "sprinkle" the floor in the storage hall with a broom to increase the humidity. This is how we worked every day. A day off was a holiday. We went to the regional center to shops, a hairdresser, a bathhouse, to look at women. After such a three-month "sitting" we were tired of everything and really wanted to go home.

Inspection checks were arranged twice. The first time was ours, Institute (KB-11), headed by chief engineer Alexey Konstantinovich Bessarabenko: night alarm, storage, checking the readiness of the product for removal from storage.

The second time was a ministerial one, headed by Georgy Aleksandrovich Tsirkov and the commander-in-chief of long-range aviation, Marshal Vladimir Aleksandrovich Sudeyets. This inspection was carried out with full gear, with a night alarm, the removal of the product and its suspension in the plane. A Willys drives up to the wide-open gates of the storage facility, takes the cart in tow and brings it under the open bomb bay of the plane. The suspension begins.

From the side – an unforgettable picture! Against the background of a dark cloudy sky, the outline of a huge bird of prey, or rather a shark, is drawn, its nose raised into the cloudy sky. It was the recently appeared strategic bomber TU-16. Under its belly, like ants, people are digging. It is hard to imagine that now they will finish their work and the huge machine will carry a deadly load on the heads of other, similar ants. A terrible creation of the human mind and hands.

According to the instructions, six and a half hours were allocated for hanging the product. Each operation was recorded under signature. We carried out the hanging in four hours. We received gratitude from the inspectors.

Finally, we waited for the order to send us home. The day before, military men arrived to replace us, young officers trained by the Ministry of Defense. We handed over to them, again under a receipt, all our belongings. The last night we "buzzed" until the morning with songs and anticipation of tomorrow's departure.

Our second group was in Machulishchi, 40 km west of Minsk. They serviced RDS-4 ('Tatiana') aerial bombs intended for use in IL-28 bombers.

The years are passing, and with them the participants of this epic are passing: Aleksandrov A.P., Rodionov V.A., Kanareikin V.I., Doroshenko F.I., Drakin V.P., Yeltsov A.M., Leibin N.B. And those who left the city have practically sunk into obscurity for us. We would not want the facts of the history of the creation of domestic nuclear weapons to leave our lives along with the people.

Now we can say whatever we want about those events, but I am convinced that only the presence of nuclear weapons in our country directed the development of history along this path, and this is the great merit of our Institute before its people and, perhaps, before all of humanity. And now the role of modern weapons should not be diminished. If you want peace, be strong!

Vladimir Pavlovich Fedechkin, a laboratory assistant at that time, and Yuri Ivanovich Polushkin, a technician, live with us. They subsequently worked in engineering positions.

I am sharing these memories so that another page of our atomic history will be preserved. I am addressing this to the youth: this is how it was for the first time."

In practice, having become convinced of the great potential for optimizing organizational measures to improve the combat readiness of military units for the use of nuclear weapons, the Central Committee of the CPSU and the Council of Ministers of the USSR adopted a Resolution on March 12, 1956, instructing the Ministry of Medium Machine Building and the Ministry of Defense to submit proposals by July 15, 1956 on the transfer in 1956 to the Ministry of Defense of assembly teams and nuclear aerial bombs located at the military bases of the Ministry of Medium Machine Building, and by the end of 1956 to develop and submit a proposal on the timing and procedure for transferring from the Ministry of Medium Machine

Building to the Ministry of Defense the function of accepting, storing and operating nuclear weapons.

The transfer of assembly teams and nuclear aerial bombs located at the nuclear weapons military bases of the Ministry of Medium Machine Building was carried out in two stages: some of them were transferred before November 15, and the rest by December 15, 1956.

By the Decree of the Government of the USSR of September 23, 1957, it was established that two central nuclear weapons storage bases would be transferred by February 1, 1958. The transfer of the remaining central nuclear weapons storage bases was carried out by the decision of the Central Committee of the CPSU and the Council of Ministers of the USSR of January 9, 1958. By June 1, 1958, all nine central bases with the nuclear munitions and personnel stored in them were transferred by the Ministry of Medium Machine Building to the Ministry of Defense. In early October 1958, the act of transfer was approved by the Resolution of the Central Committee of the CPSU and the Council of Ministers of the USSR.

The function of ordering nuclear weapons was also completely transferred from the Ministry of Medium Machine Building to the Ministry of Defense.

As a result of the measures taken in 1958 to establish an effective, highly interactive system of development, production on the one hand (Ministry of Medium Machine Building) and operation of nuclear weapons on the other hand (Ministry of Defense), a new military structure was formed, which assumed responsibility for the management of work related to providing the branches of the Armed Forces with various types of nuclear weapons, their reliable storage and operation.

The Ministry of Defense was tasked with increasing the daily productivity of central bases for issuing nuclear munitions to military bases by 2 times by the end of 1958, compared to the operational plan in force. To accomplish this task, it was necessary to bring some of the nuclear munitions stored at central bases in a disassembled state to a state close to the maximum degree of readiness, in which they were to be sent to the advanced military nuclear weapons bases, and also to strengthen the assembly teams with personnel.

The following circumstances contributed to the adoption of this cardinal decision:

1. completion by the nuclear industry (NI) of a comprehensive, proven technology for the operation of nuclear weapons, its organizational and logistical support, as well as the practical implementation of the storage of nuclear weapons at central and forward military bases;
2. training, with the assistance of the Ministry of Medium Machine Building, qualified engineering and technical personnel, and their acquisition of relevant experience in the operation of nuclear weapons;
3. creation in the military department of the necessary infrastructure for the operation and use of nuclear weapons.

Nuclear munitions in operation (in service) at central storage bases were periodically returned to the serial assembly plants of the Ministry of Medium Machine Building: the Electromechanical Plant "Avangard" and the Plant "Elektrokhimpribor" for routine maintenance. At the end of the warranty period, nuclear munitions were returned to the above plants for disassembly and disposal.

The organization of the operation of nuclear munitions at the central and advanced military nuclear weapons storage bases was preceded by the practice of their experimental storage in KB-11 of the Ministry of Medium Machine Building in the city of Arzamas-16. It was then that the operational documentation and requirements for warehouses were developed, the technology for assembling nuclear munitions to the established degree of readiness was worked out, the technology for maintaining the component units of nuclear munitions in the

corresponding degrees of readiness. Specialists were trained, and only after that the first "bookmarking" of nuclear munitions was carried out at the central storage bases and military warehouses.

The first two Training Centers for training specialists operating nuclear weapons were created in the 1950s. They were subordinate to the First Main Directorate (since 1953 – the Ministry of Medium Machine Building) and were located at two serial nuclear weapons manufacturing plants: at serial plant No. 551 (P.M. Zernov's facility, Arzamas-16) and at serial plant No. 418 (A.Ya. Malsky's facility, Sverdlovsk-45).

The third Training Center was created at the 71st Air Force training ground and was located in Crimea (Bagerovo settlement).

In 1958, the Training Centers of the Ministry of Medium Machine Building were transferred to the Ministry of Defense. They were given the names of Training Centers of the 12th Main Directorate of the Ministry of Defense. From April 1959, one of them was headed by Colonel-Engineer I.P. Telepnya, and the other by Colonel-Engineer K.K. Reshetnyak.

To relocate the Training Centers, training buildings, laboratories, and housing for permanent and temporary personnel were built at two Main Directorate facilities. In July 1961, the Training Centers were moved to new locations.

On February 6, 1959, a Training Center was created on the premises of the Training Range No. 2 (Semipalatinsk Test Site) of the Ministry of Defense, headed by Colonel B.A. Kryzhov. On October 30, 1961, a Training Center was created on the premises of the Central Research Institute of the Ministry of Defense (Zagors-7) (headed by Colonel V.N. Kaminsky). Both Training Centers were intended to prepare assembly brigades for the Missile Forces.

The transfer of all central nuclear weapons storage bases to the military department in August 1958 meant that all nuclear weapons operations were concentrated in the Ministry of Defense.

The operating principles aimed at preventing the unauthorized use of nuclear weapons have essentially remained the same:

- delineation of functions, but already within the military department;
- access of a limited circle of persons to operational issues;
- strict secrecy regime.

From that moment on, nuclear weapons were operated by:

- central storage bases that received nuclear weapons from industry and carried out their storage and operation at established levels of readiness, as well as technical management and control of the operation of nuclear weapons at assigned military bases;
- military nuclear weapons bases of the branches of the Armed Forces that stored and operated military stockpiles of nuclear munitions, carried out work to prepare them for combat use, and carried out timely delivery and issuance of nuclear munitions in terms of the combat use of nuclear weapons;
- mobile bases of the branches of the Armed Forces engaged in the preparation of nuclear weapons (bombs, engineering mines, artillery shells) for combat use - in field conditions;
- military units for combat use that contained or were ready to immediately perform work on maintaining nuclear weapons at the highest levels of readiness, including those docked (suspended) to nuclear weapons carriers.

The active growth of types and branches of troops with nuclear weapons, the increase in their quantity, nomenclature, as well as

combat readiness requirements, brought to the forefront the issues of improving nuclear ammunition. Already in the 1960s, the number of nuclear-technical units directly involved in the operation of nuclear ammunition increased significantly. The number of central nuclear weapons bases doubled in the ten years after their transfer from the Ministry of Medium Machine Building to the Ministry of Defense.

The nuclear weapons bases of the branches and arms of the armed forces underwent significant changes. In the Strategic Missile Forces (SMF), bases were created for interaction with the missile divisions of intercontinental missiles, the composition of which was increased from 3-4 to 10 assembly brigades (according to the number of launch divisions). The assembly brigades were assigned the function of independent final preparation of nuclear munitions for combat use (in the 1950s, this task was implemented jointly with the assembly brigades of the central bases).

This required an increase in the intensity of retraining of officers of assembly brigades of the military bases of the Missile Forces. In 1961 alone, in the Training Centers of the 12th Main Directorate of the Ministry of Defense, retraining of specialists in 24 new types of nuclear munitions was carried out. Retraining of specialists operating nuclear weapons directly in military units by seconded instructors of the Training Centers began to be widely practiced.

The radical improvement of the qualifications of officers operating nuclear weapons, supervising their development and production, was facilitated by the training of such specialists that began at the F.E. Dzerzhinsky Military Academy. The first graduation of specialists in nuclear weapons was carried out in 1958 by the Department of Special Equipment of the Faculty of Jet Weapons. In November 1958, this department was transferred to the Faculty of Ammunition (since 1959 - the Faculty of Combat Equipment; since 1968 - the Faculty of Special Weapons). In the 1970s, officer personnel for the 12th Main Directorate of the Ministry of Defense also began to be trained at the Perm and Serpukhov, and then at the Rostov Higher Military Command and Engineering Schools of the Missile Forces.

Thus, by the mid-1960s, the 12th Main Directorate of the Ministry of Defense had developed a well-organized system of special training for engineering and technical personnel involved in the operation of nuclear weapons.

Improving the Operation of Nuclear Weapons

Since the early 1960s, the tactical and technical specifications for the development of nuclear weapons began to include requirements for their operational parameters, taking into account operational experience.

The improvement of nuclear weapons followed the path of reducing their dimensions, improving their design, increasing reliability, increasing their shelf life, expanding the climatic conditions of operation, transportation resource, optimal transfer of special products to higher levels of readiness, reducing the amount of work during technical maintenance, ensuring safety at all stages of operation.

The growth of the range of nuclear munitions supplied to the troops led to a significant increase in the volume of design documentation. By 1960, it comprised from 100 to 200 items for one type of special product. Operational forms were not compiled according to a single form, and the large accompanying documentation contained many appendices.

In order to optimize the design documentation, the general requirements had to be consolidated into single guidelines. In 1960, the "General Guide to the Technical Operation of Special Products" and the "Guide to the Transportation of Special Cargo" were prepared.

The Standard of the Ministry of Medium Machine Building and the Ministry of Defense "Requirements for the compilation and execution of operational documentation for special products" was developed and

put into effect on January 1, 1962. According to the Standard, the main operational documents included: "List of operational documentation", "General instructions for the operation of the product", "Control checks of product units and testing of electrical equipment of the assembled product", "Final preparation of the product for combat use", "Operational equipment and bench equipment". The improvement of the documentation was facilitated by specially created joint commissions of the Ministry of Medium Machine Building, the 12th Main Directorate of the Ministry of Defense, and the types of the Armed Forces.

An important component of nuclear support was the activity of military nuclear weapons storage bases and monitoring the condition of the nuclear weapons stockpiles contained therein.

The supply of nuclear munitions from central storage bases to the branches of the Armed Forces in peacetime was planned to be carried out during the accumulation and renewal of military stockpiles of nuclear weapons. In a period of threat or in wartime, the supply of nuclear munitions to the troops for issue and replenishment of military stockpiles was envisaged.

Improving the issues of supply required increasing the reliability of control and survivability of central and military storage bases, expanding their capabilities for delivering nuclear weapons to troops. This required the creation of special management structures dealing with issues of ensuring the constant combat readiness of nuclear weapons. It was necessary to ensure

constant readiness to deliver nuclear weapons to troops within the established timeframes, as well as their safety.

The increase in the operational and technical characteristics of nuclear munitions, their qualitative improvement made it possible to operate nuclear munitions under the conditions of the proposed tactics of action. Many years of joint activity of scientific and design organizations of the Ministry of Medium Machine Building and the Ministry of Defense made it possible to obtain such a result.

The first plan of joint work on improving the operational technical characteristics of special products for 1973-1974 was drawn up in 1973. Later, commissions and working groups were created to standardize operational equipment and safe operation of nuclear weapons. In 1991, a permanent interdepartmental commission on the operation of nuclear weapons began its work.

Thanks to the joint efforts of nuclear weapons developers and the institutions of the 12th Main Directorate of the Ministry of Defense in the 1970s and 1980s, it was possible to significantly simplify the operation of nuclear weapons in the troops, including:

- cancel the consideration of climatic conditions of operation at the combat complex for all types of warheads of the Strategic Missile Forces and a number of nuclear air defense munitions;
- reduce the time required for maintenance of nuclear weapons;
 - reduce the range of control and measuring equipment and consumables.

By the end of the 1970s, the military units of the 12th Main Directorate of the Ministry of Defense represented an organization capable of providing high-level nuclear support to the branches of the Armed Forces and military branches.

The USSR Nuclear Weapons Complex During the Crisis

By the end of the 1970s, the USSR had achieved nuclear parity with the USA. The USSR's nuclear weapons complex was capable of competing with the US nuclear potential and providing an adequate response to any change in the military-technical balance. By the

beginning of the 1980s, the nuclear arsenals of the USSR and the USA amounted to 25-30 thousand nuclear weapons on each side.

Serious losses in the domestic and foreign policies of the country's leadership in the second half of the 1980s initiated the beginning of the destruction of the Soviet state.

Implementing the course of "new political thinking", in 1987 M.S. Gorbachev concluded an agreement with the USA on the destruction of medium- and short-range missiles, persistently pursuing a policy of reducing nuclear weapons in the world, largely at the expense of his own missile and nuclear potential. The result of this "new" policy was the destruction of his own state, the collapse of the scientific and industrial structure, including the nuclear weapons complex. The collapse of the Soviet Union brought the USA to the rank of the world's only superpower. In December 1991, the American president congratulated his people on their victory in the "cold war".

Even before the legal collapse of the USSR, the Soviet military leadership managed to group tactical nuclear weapons (approximately 30 thousand units) on the territory of Russia, Ukraine, Belarus, and Kazakhstan.

Undoubtedly, the newly formed states in the post-Soviet space had the right to a part of the nuclear arsenal of the former superpower. But having compared this opportunity with military, economic, political expediency, not without the influence of Russia and the USA, the leaders of the Republic of Belarus, the Republic of Kazakhstan and Ukraine came to the decision to grant their states the status of "nuclear-free" and recognized the Russian Federation as the sole and full successor of the USSR in terms of possession of nuclear weapons.

In the complex of organizational and technical measures in handling nuclear weapons, technical measures to ensure the safety of nuclear munitions became a priority for Russia. Particular attention was paid to the physical protection of nuclear-hazardous facilities of the 12th Main Directorate of the Ministry of Defense, in order to prevent unauthorized entry by outsiders, as well as attempts to steal nuclear weapons. The introduction of technical means to ensure the safety of nuclear munitions was facilitated by the Russian-American commonwealth within the framework of the Cooperative Threat Reduction Program.

The situation with strategic nuclear weapons was more complicated. In April 1995, nuclear weapons were removed from Kazakhstan, by June 1996 – from Ukraine, and by November 1996 – from Belarus.

On April 3, 1995, two agreements were concluded between the military departments of the United States and Russia: in the area of nuclear weapons storage security and in the area of their transportation through the provision of material and technical resources, services and relevant training.

The American side supplied 150 supercontainers to protect nuclear munitions from small arms, from fires and physical protection during cargo handling, by direct access to nuclear weapons. In 1996-1997, with the help of the USA, the physical protection and heat resistance of 115 railway cars for transporting nuclear munitions was improved. Improvement of the physical protection of nuclear munitions storage sites began. For these purposes, the USA supplied sets of special equipment, including alarm systems, video cameras, etc.

In 1997, by order of the Minister of Defense of the Russian Federation, all military nuclear weapons bases (except for the Strategic Missile Forces) were transferred to the 12th Main Directorate of the Ministry of Defense. In 2002, a number of nuclear weapons bases of the Strategic Missile Forces were also transferred to the 12th Main Directorate. Life has shown that this decision was correct.

The concentration of all forces and means of nuclear-technical support under a single command made it possible to optimize the composition of the group of nuclear-technical troops, without reducing combat

readiness, to disband a number of military nuclear weapons bases, as well as a number of central nuclear weapons bases.

Before the reduction and dismantling of nuclear weapons, the number of nuclear weapons entering service was balanced with the number being decommissioned. Only the necessary number of nuclear weapons were in service. After the warranty period expired, they were returned to the plants, where they were dismantled and disposed of. Fissile materials were sent for reprocessing, after which they were used to manufacture new nuclear charges. There was a well-established structure, cooperation between plants that ensured the dismantling of old and the manufacture of new nuclear weapons. There was no need to store a large number of nuclear weapons before dismantling.

With the collapse of the USSR, the situation changed. The need to eliminate and dispose of a large number of nuclear weapons created serious difficulties for the nuclear industry and for the facilities of the 12th Main Directorate of the Ministry of Defense.

The first priority for reduction in accordance with international obligations was modern nuclear weapons before the expiration of warranty periods. Russia was forced to store older nuclear weapons, removed from service due to the expiration of warranty periods, until their dismantling beyond the time limits established by safety conditions. All nuclear weapons storage facilities (bases) were overcrowded.

Instead of a conclusion

The political significance of nuclear weapons created in the USSR in the late 1940s has not lost its relevance to this day. Nuclear weapons are still necessary to ensure the national security of the Fatherland. The reality is that only nuclear weapons can guarantee the exclusion of the possibility of political pressure or military threat against our country and its allies at the global and regional levels. Nuclear weapons have become a deterrent, allowing our country to live in a world without destructive and devastating wars for a long time. The deterrent meaning of the existence of nuclear weapons is their non-use. And therefore, in the foreseeable future, nuclear weapons will not disappear from nuclear arsenals.

Specialists of central and military nuclear-technical bases operated tens of thousands of nuclear munitions for decades. Nuclear weapons test specialists of research institutes and enterprises of the Ministry of Medium Machine Building (later the Ministry of Atomic Energy of Russia) worked for more than 50 years on the creation and production of nuclear weapons. During all this time, not a single nuclear or radiation accident occurred. This is the main indicator of the highest professionalism and responsibility of the civilian test personnel of the Ministry of Medium Machine Building and the military personnel of the 12th Main Directorate of the Ministry of Defense.

The effective system for ensuring the safe operation of nuclear weapons, created by the nuclear weapons development enterprises of the Ministry of Medium Machine Building, is an achievement of great national significance.

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About the author. Korchagin Evgeny Fedorovich is a direct participant in the testing of nuclear charges in the period 1957-1989. With his direct participation, 31 nuclear charges were prepared and tested in the atmosphere in 1957-1962 at the Semipalatinsk and Novaya Zemlya test sites. Direct participant in the preparation and testing of 88 nuclear charges underground (period 1965-1989), including:

- 65 – at the Semipalatinsk test site;
- 18 – at the Novaya Zemlya training ground;
- 3 – in Azgir, Kazakh SSR;
- 2 – not the Mangyshlak Peninsula.

Direct participant in the conduct of two nuclear explosions for the needs of the national economy of the USSR (1967, 1970). In 1981, Korchagin E.F. was awarded the title "The best tester of VNIIEF". For the successful testing of special products (nuclear charges) he has 24 gratitudes from the Government of the USSR, the Minister of Medium Machine Building, and the Director of RFNC-VNIIEF.



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Comment

Thank you for your interest.

Re: Creation of the nuclear shield of the Fatherland (Total: 0)
from Guest on 10/09/2010
Thank you!

[[Reply to this](#)]

Re: Creation of the nuclear shield of the Fatherland (Total: 0)
from Guest on 12/10/2010

Thank you! Unfortunately, the years take away from the lives of people who stood at the origins of the creation of the Union's nuclear shield. And I really wanted to read their personal memories of that difficult time. In my opinion, the enormous organizational work of L.P. Beria in this area has not been fully disclosed to this day. In my opinion, the political component prevails over the practical contribution he made to the organization of the creation of atomic weapons.

[[Reply to this](#)]

Re: Creation of the nuclear shield of the Fatherland (Total: 0)
from Guest on 10/24/2010

Dear Evgeny Fyodorovich!
I thought for a long time what to say when there is nothing to say.
And it is best to use army language: I express my gratitude to you in front of the formation with an entry in my personal file for your work and for this historical work for posterity. Your colleague at "Deuce".

[[Reply to this](#)]

Re: Creation of the nuclear shield of the Fatherland (Total: 0)

from Guest on 12/02/2011

My father served at the Semipalatinsk test site, and my mother worked there too. Unfortunately, as my father told me, many officers were unable to obtain the status of "veterans of special risk units" during their lifetime, since they participated in tests based on verbal orders. I remember how we went out to the park, near the Officers' Club, with suitcases, how we closed the windows in the apartments, where the furniture would then jump during the tests. How the "second Sun" shone... How I ran with a mess tin to my father during numerous alarms, especially during the Cuban Missile Crisis. Only in the early 2000s did I manage to find out from the Internet that I had survived 198 tests at the Semipalatinsk test site. I remember how we stood in lines with coupons for food. How we dug potatoes in the vegetable gardens, in the steppe and went for watermelons in the melon field, to the signalmen and gooseberries - under Mayskoye... How our fathers, after a successful fishing, brought a ton of fish, put it in the middle of the town and we sorted it out in buckets, and in the bathroom, at home, there were always several pikes swimming... I remember parades in the garrison, Generals Gureev and Vinogradov, Colonel Kryzhov... And how I once, as a 6-year-old boy, gave a checkmate to the head of the Officers' Club himself, where my mother worked at the radio center! I remember wonderful concerts in the huge Soldiers' Club, performances by CDSA artists, a display of the banners of the defeated fascists... I remember cornflowers and the endless Kazakh steppe, with combines to the horizon. And trips to "civilization", to Semipalatinsk with its unforgettable chebureks, 120 km away, once a year, with an unthinkable "special" permit... I remember our school #20, the director Dodeeva, the book she signed for my modest academic work as a first-grader, which I carefully keep... And then my father was transferred to Crimea, near Feodosia. A beautiful place, a monastery, a partisan camp from the Great Patriotic War, ten to six kilometers from the sea (depending on how you count and get there), wine state farms... And a whole city in grief... Endless columns of special URALs... And a stele-monument to Lenin made of copper, dismantled "products" and special concrete that the "independent" authorities could not dismantle... And the "killed", half-collapsed cultural center of the once closed town - its Officers' House... Only the school is alive, because there are still teachers with a tradition of doing everything only "excellently". And that is why the school is now the best in Crimea. The best, in a half-collapsed town, with the best military hospital destroyed, the military trade disbanded and until recently - without its own outpatient clinic... What a training the residents who still live there received, including veterans of the 12th GUMO! It's great that veterans have finally reached the Internet! There are very few of you left, and every day there are fewer and fewer. Have time to tell us and our grandchildren about how it all was... My father did not have time - it was not possible then. All that remains are his photo albums and my desire to somehow publish them. And to help you, veterans, in your memories. Thank you! Bubnov Vladimir

[[Reply to this](#)]

Re: Creation of the nuclear shield of the Fatherland (Total: 0)

from Guest on 12/10/2011

Dear Vladimir, we are ready to publish. Write: e-vi@list.ru With respect, Head of the Department A. Titov

[[Reply to this](#)]

Re: Creation of the nuclear shield of the Fatherland (Total: 0)

from Guest on 06/15/2012

Yes, the childhood spent in the towns of 12 GUMO is now remembered as endless happiness. It passed among wonderful, smart and noble people. And how sad, bitter and offensive it is to look now at the ruins of Feodosia-13, because it is about it that you write.

Thank YOU, veterans of the Main Directorate, for the peaceful sky and wonderful childhood.

Aborigine of Mozhaish K-510 and Kiziltash.

[[Reply to this](#)]

Re: Creation of the nuclear shield of the Fatherland (Total: 0)

from Guest on 02/26/2013

Not only have they destroyed the military units of the 12th GUMO territorially located on the outskirts of the USSR, but they continue to destroy them by implementing the reforms of the "strategist" of the former minister Serdyukov with the help of Slavyanka and similar firms. It is painfully offensive to look at the state of affairs in the units that until recently were an example in their condition and were the guarantor of defense capability.

[\[Reply to this \]](#)

Re: Creation of the nuclear shield of the Fatherland (Total: 0)

from Guest on 11/11/2016

It's wonderful that our Kiziltash, like all of Crimea, is now Russia again!

Born in Mozhaisk, educated in Feodosia, son of the 12th State University of the Ministry of Defense.

[\[Reply to this \]](#)

Re: Creation of the nuclear shield of the Fatherland (Total: 0)

from Guest on 10/01/2017

Wonderful article! I read it and it was as if life began to unfold before my eyes. Childhood in Lesnoy (Sverdlovsk-45), father at Elektrokhimpribor, my service in the Strategic Missile Forces RTB, the gradual decline of the once beautiful city, perestroika-razlomaika, but most importantly - the people. I have never met such people anywhere else! Thanks to the author!

[\[Reply to this \]](#)

Re: Creation of the nuclear shield of the Fatherland (Total: 0)

from Guest on 09/05/2017

1

[\[Reply to this \]](#)

Re: Creation of the nuclear shield of the Fatherland (Total: 0)

from Guest on 09/05/2017

The forestry and Elektrokhimpribor plant are developing.

[\[Reply to this \]](#)

Re: Creation of the nuclear shield of the Fatherland (Total: 0)

from Guest on 12/04/2019

Training center (chief Colonel V.N.Kaminsky). Error - Kamensky!

[\[Reply to this \]](#)

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